Amendments to the Specification:

Please replace Paragraph [0011] on pages 4 and 5 of the instant application with the following:

[0011] A MWD/LWD tool typically transmits a 2 MHz signal (although frequencies as low as 0.4 MHz are sometimes used). This frequency range is high enough to create difficulties in transforming the raw attenuation and phase measurements into accurate estimates of the resistivity and/or the dielectric constant. For example, the directly measured values are not linearly dependent on either the resistivity or the dielectric constant (this nonlinearity, known to those skilled in the art as "skin-effect," also limits the penetration of the fields into the earth formation). In addition, it is useful to separate the effects of the dielectric constant and the resistivity on the attenuation and phase measurements given that both the resistivity and the dielectric constant typically vary spatially within the earth formation. If the effects of both of these variables on the measurements are not separated, the estimate of the resistivity can be corrupted by the dielectric constant, and the estimate of the dielectric constant can be corrupted by the resistivity. Essentially, the utility of separating the effects is to obtain estimates of one parameter that do not depend on (are independent of) the other parameter. A commonly used current practice relies on assuming a correlative relationship between the resistivity and dielectric constant (i.e., to transform the dielectric constant into a variable that depends on the resistivity) and then calculating resistivity values independently from the attenuation and phase shift measurements that are consistent <u>with</u> the correlative relationship. Differences between the resistivity values derived from corresponding phase and attenuation measurements are then ascribed to spatial variations (inhomogeneities) in the resistivity over the sensitive volume of the phase shift and attenuation measurements. See for example U.S. Patents 4,899,112 and 4,968,940. An implicit and instrumental assumption in this method is that the attenuation measurement senses both the resistivity and dielectric constant within the same volume, and that the phase shift measurement senses both variables within the same volume (but not the same volume as the attenuation measurement). See for example U.S. Patents 4,899,112 and 4,968,940. These assumptions facilitate the independent determination of a resistivity value from a phase measurement and another resistivity value from an attenuation measurement. However, the

implicit assumption mentioned above is not true; so, the results determined using such algorithms is questionable. --

Please replace Paragraph [0026] on page 12 of the instant application with the following:

[0026] When the background conductivity σ_0 and/or dielectric constant ε_0 are replaced with new values σ_0 and/or ε_0 in the volume *P* 225, the ratio between the receiver 207 voltage to the transmitter 205 current is represented by Z^1_{RT}. Using the same nomenclature, a ratio between a voltage at a hypothetical receiver placed in the volume *P* 225 and the current at the transmitter 205 can be expressed as Z^0_{RT}. In addition, a ratio between the voltage at the receiver 207 and a current at a hypothetical transmitter in the volume *P* 225 can be expressed as Z^0_{RT}. Using the Born approximation, it can be shown that,

$$\frac{Z^1_{RT}}{Z^0_{RT}} = 1 + S(T, R, P)\Delta\bar{\sigma}\Delta\rho\Delta z$$

Please replace Paragraph [0156] on page 50 of the instant application with the following:

[0156] The disclosed techniques provide accurate conductivity estimates that are independent of dielectric constant properties. Conductivity values serve several applications such as (i) detecting the presence, absence or amount of a hydrocarbon, (ii) guiding a drill bit within a productive zone, (iii) estimating ~~poor~~ pore pressure, and (iv) evaluating reservoir and other geological features through correlation with logs and nearby wells. Two examples of applications for dielectric values are detecting the presence, absence or amount of a hydrocarbon or detecting vertical fractures. --